

Guide To New Construction COMMERCIAL

Provided by Metro Water Services

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The Metropolitan Government of Nashville and Davidson County, Tennessee

This handbook is provided for informational purposes only. It is not intended to be a legal document.



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introduction

Dear Customer:

We are pleased to provide this guide to introduce commercial customers to our department's policies and procedures regarding new residential construction. Metro Water Services is a department of the Metropolitan Government of Nashville and Davidson County that provides service to more than 155,000 water accounts and more than 166,000 sewer accounts.

Our department supplies drinking water to customers in Davidson County as well as portions of Rutherford and Williamson Counties. Two water treatment plants serve this community: the K.R. Harrington and the Omohundro Water Treatment Plants, with a combined capacity of 180 million gallons of water per day. The drinking water is conveyed by a distribution system consisting of more than 2,700 miles of water main, with our largest pipe being five feet in diameter.

Wastewater is treated by one of three wastewater treatment plants: Central, Whites Creek and Dry Creek. These facilities serve customers in Davidson and portions of Sumner, Robertson, Wilson, Rutherford, and Williamson Counties. The Central Wastewater Treatment Plant, our largest, is able to treat 330 million gallons of wastewater per day. The Dry Creek and Whites Creek Wastewater Treatment Plants have a combined capacity to treat more than 129 million gallons per day. Our wastewater collection system has more than 2,700 miles of piping, the largest of which is 16 feet in diameter. On an average day, we treat more than 150 million gallons of wastewater.

Responsibility for Nashville's stormwater management was transferred to MWS from the Department of Public Works in 2002. The Stormwater Division utilizes both educational and regulatory initiatives to improve water quality by reducing the amount of pollutants entering rivers and streams as a result of stormwater runoff. The division reviews plans for new development projects for compliance with Metro stormwater regulations, issues grading permits, and inspects construction sites for proper erosion control measures. It is responsible for maintenance of the storm sewer system, construction of stormwater capital improvement projects, and compliance with Metro's Municipal Separate Storm Sewer System Permit.

THE MISSION OF METRO WATER SERVICES IS:

To provide drinking water, wastewater treatment and stormwater management services to our community so we can enjoy a vital, safe and dependable water supply and protected environment.

We hope this guide will make it easier for you to do business with Metro Water Services and answer many of your questions. Telephone numbers and Web site references are provided throughout for additional information. Please contact us with any questions or issues not addressed in this guide.

Metro Water Services encourages the involvement of our customers. The Trades Advisory Council offers plumbers, engineers, contractors and developers a unique opportunity to get involved. This group reviews changes in policy that affect customers that want to connect to our infrastructure and makes suggestions to help make it easier to do business with the department. If you would like to get involved or request more information, please contact the Permits Office of MWS at 862-7225.

Thank you for allowing us to serve you.

Scott Potter Director

<u>processoverview</u>

Step 1 » Submit request for water and sewer availability to MWS Development Services

Step 2 » Development Services performs sewer capacity study

Step 3 » Development Services sends letter outlining sewer capacity fees and requirements to MWS Permits Office and customer

Step 4 » Pay sewer capacity fees to MWS Permits Office

Step 5 » Development Services sends availability letter to customer including water availability information as appropriate

Step 6 » Is a water or sewer extension necessary?

- O No? Skip to step 13
- O Yes? Continue with steps 7-12

Step 7 » Submit 2 sets of construction plans for approval by MWS

Step 8 » Pre-construction meeting is held

Step 9 » Apply to MWS Permits Office for construction permit

Step 10 » Construct public water and/or sewer extensions (including all water and sewer service lines) to MWS specifications as directed by MWS inspector or request MWS inspector to schedule run to curbs (water only) after completion of the water main

Step 11 » MWS inspects construction

Step 12 » Deliver transfer slips to MWS Permits Office

Step 13 » Submit three sets of site utility plans with cross connection specifications and application for water/sewer tap permits to MWS Permits Office

Step 14 » MWS Plans Review Committee reviews plans

Step 15 » Is an excavation permit required?

- O No? Continue with step 16
- O Yes? Obtain excavation permit from Department of Public Works and set meter permit from MWS, then continue with step 16

Step 16 » MWS issues permits after any tap fees due are paid

Step 17 » Purchase calibrated meter complete with properly connected MXU unit

Step 18 » Call the MWS Permits Office to schedule a crew to tap a public water or sewer main, having completed excavation of tap location prior to MWS crew arrival and having all materials available and ready to install

Step 19 » Request inspection of water taps and sewer connections

Water Taps» Call MWS Permits Office to request inspection
Sewer Connections» Call Metro Codes to request inspection

Step 20 » Install water meter and water meter box

Step 21 » Call MWS Cross Connections for inspection of backflow prevention device

PROCESS END

Once all items are installed correctly and pass inspection and all remaining sewer capacity fees are paid, MWS Permits Office releases its portion of the use and occupancy building permit.

1 »

Availability Request

All proposed commercial, institutional, and industrial developments within the Department's water or sewer service areas require a determination of the availability of water and/or sewer services.

Industrial customers, including food establishments, permanent car washes and other types of industrial customers, should contact the MWS Environmental Compliance group (862-4590) for requirements regarding excessive strength wastewater. For more detailed information for industrial users, please refer to Appendix 1.

Developers and property owners, or their representatives, should contact Development Services to determine water and sewer availability. Requests for water and sewer availability may be made via letter or using the Request for Water and Sewer Availability form (Appendix 2).

The following information must be included:

- Location of the property with Tax Map and Parcel number
- Total acreage of the site
- Intended type of development of use of the property, along with total square footage of proposed building
- Projected wastewater flow in gallons per day (GPD)
- Subdivision development plan with finished floor elevations

Submit the request letter or form, development plan and application fee of \$50.00 (check payable to: Metro Water Services) to:

Metro Water Services Development Services Attn: Availability Request 1600 2nd Ave. North Nashville, TN 37208

For assistance or additional information, please contact MWS Development Services at 615-862-4578.

2 »

Sewer Capacity Study

Upon receipt of a request for availability, Development Services will perform a sewer capacity study based on the projected wastewater flows for the proposed development in gallons per day (GPD). Please see Appendix 3, for examples of projected flows for various developments.

3 »

Fees and Requirements

Upon completion of the sewer capacity study, Development Services will send the customer a letter outlining sewer capacity fees and any special conditions or requirements for providing water and/or sewer service to the development.

Capacity fees are currently assessed at \$500 per unit of flow. A unit of flow is equal to 350 gpd. (See Appendix 3 for a list of projected flow examples.) This study usually takes 15 working days to complete, depending on the size and complexity of the proposed development.

For assistance or additional information, please contact the MWS Development Services Office at 615-862-4578.

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Sewer Capacity Fees

Bring a copy of the letter outlining sewer capacity fee and sewer requirements to the MWS Permits Office and pay sewer capacity fees. A minimum of 30 percent of the sewer capacity fees due must be paid within 60 days of the date of the capacity fee letter to reserve sewer capacity. This payment reserves sewer capacity for one year from the date of the availability letter.

Note: If construction of the proposed project has not begun within one year, or the second payment equaling 55 percent of the total capacity fees due has not been paid, the amount paid will be forfeited. The balance due must be paid prior to the issuance of a sewer connection permit.

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Availability Letter

After payment is made, Development Services will send an availability letter to confirm the point of connection for the water and sanitary sewer, as well as:

- Water service elevations
- Water main size
- Sewer capacity purchased

The statement of sewer and water availability is effective for one year from the date of the availability letter. If, after approval of sewer and water availability, construction has not begun within the established time period, a renewal of the availability statement will be required and all applicable departmental regulations and fees in force at that time will be imposed.

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Water and Sewer Extensions

Is a water or sewer extension necessary?

- O No? Skip to step 13
- Yes? Continue with steps 7-12

7 »

Construction Plans

If a proposed development requires the extension of a public water main or sewer line, the owner or developer shall retain the services of a State of Tennessee Professional Engineer to prepare construction plans.

Two sets of plans must be submitted to Development Services. The engineer's stamp must be affixed to the proposed plan. Plans will be reviewed and returned with any necessary revisions.

A letter of credit will be required if a plat is not involved. The amount of the letter of credit will be determined by MWS Development Services.

For additional information, call MWS Development Services at 615-862-4574.

Plan Submittal Requirements

MWS has adopted the following general guidelines for all proposed water and sewer system extension plans. These guidelines are intended to aid in the preparation of construction plans and are not intended to supersede standards of the Tennessee State Health Department criteria. These guidelines should not be considered as all-inclusive requirements. Where circumstances warrant, additional information may be required. A Construction Plan Review Checklist is provided in Appendix 4.

Schedule

Plans must be submitted at least 30 days prior to the date on which action by MWS is requested. In the case of pump stations and other special circumstances, a longer review period may be required. Plans will not be accepted for review until a minimum of 30 percent of capacity fees due have been paid.

Initial Submittal

The initial submittal shall consist of two sets of construction plans (paper) as well as electronic drawing files in *.dwg format. Electronic files shall be in AutoCAD release 14 to release 2002. Plans are to be prepared in or converted to model space, and no paper space drawings will be accepted. Electronic drawings should be adjusted horizontally and vertically to NAD 1983 Tennessee State Plane Coordinate System. Electronic drawings shall not contain special fonts or attributed data with the files, standard Autocad fonts only are to be used in all cases.

When a project is to be built in phases, an overall plan of the entire project shall be submitted with the first phase. Future phases will require two sets of construction plans, electronic files and any changes to the overall plan. Should additional phases be added or if changes in the layout are required, an update to the overall drawing shall be submitted at the earliest date possible.

Requirements for Connections to Public Mains Master Water Plan

All water distribution system design shall generally conform to the master water plan published by the department. In addition to department requirements, all state health department requirements in effect at the time of construction shall be followed. In case of conflict, the more stringent requirement shall apply to the proposed construction.

Online resources for additional information regarding state requirements:

Sewer: www.state.tn.us/environment/gwp/ Water: www.state.tn.us/environment/dws/

Construction Plan Design Guidelines

Plans will be reviewed and returned to the engineer with any necessary revisions indicated. Format and content of the plans shall be as follows:

- All plans shall be stamped by a Tennessee Licensed Professional Engineer.
- A cover sheet shall be made a part of all plans, and shall incorporate a location map on an approximate scale not less than 1'' = 1,000 feet, the name of the project and the names, addresses and telephone numbers of the developer and the engineer.
- Plans shall be drawn on standard 24" x 36" sheets. <u>Note:</u> No other size will be accepted.
- Standard Plan Notes (Appendix 5) shall be shown on all plans submitted for review.
- Water line plans shall be shown on the overall plan. Indicate all conflicts with other utilities and label all sleeves, valves, fire hydrants, proposed service locations, etc.
- Plans shall be drawn on a 1'' = 50 feet scale and the profile shall be drawn on a scale of 1'' = 50 feet horizontal and 1'' = 5 feet or 1'' = 10 feet vertical. In areas where the topographic features are dense, detail sheets may be required on a scale of 1'' = 20 feet, with the clearance between the proposed main and existing structures clearly defined and noted.
- All plans shall include a Bench Mark based on USGS

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Datum and referenced to State Plane Coordinates.

- Show all topographic features such as driveways, pavement, right-of-ways, property lines, storm drainage structures, etc.
- Show all property lines on the plans as well as map and parcel information for each parcel. Where possible, show lot numbers and/or street addresses.
- All plans must show the locations of the existing utilities, including but not limited to gas lines, underground utility conduits, power and telephone poles, water mains, sanitary sewer lines, storm sewers, etc., with measurements and/or details of proposed clearances of same.
- The direction of North should be clearly shown on all plans.
- Careful attention to development sites and finished floor elevations is necessary to insure adequate water pressure. The engineer is responsible for providing accurate elevation data and determining finished floor elevations adequate for service.
- All water mains shall have a minimum of 30 inches cover in paved areas.
- All water meters installed must be equipped with electronic registers and MXU device.
- Public water mains on private property or in alleys are not normally approved.
- When crossing under an interstate highway or railroad, a minimum size carrier pipe of 18 inches will be required (Ductile iron).
- A minimum of 10 feet of horizontal clearance between water mains and sanitary sewers shall be maintained whenever possible. When the 10 feet of separation is not possible, a minimum vertical separation of 18 inches shall be maintained. When the vertical separation cannot be maintained, the sewer must be built to water main specifications. Whenever sewers must cross under water mains, the sewer shall be laid at such an elevation that the top of the sewer is at least 18 inches below the bottom of the water main.

- A preliminary subdivision plat that has the Metro Planning Commission's stamp of approval must accompany the initial plans submittal and with all proposed subdivision section of phase lines clearly defined.
- Water mains proposed to serve property where the serviceability is questionable shall indicate the service elevation, where this condition exists and must be clearly indicated on the plan and profile. On lots where the structure will be above the service elevation, 20 P.S.I. must be provided at the street with the lot served by a privatelyowned and maintained booster pump.
- A connection must be provided for each parcel or proposed lot. The tap location will be shown on the plans and an appropriately sized service line extension to the curb indicated, where applicable, for each parcel.
- The following agencies may also require approval of the construction plans:

Tennessee Department of Health (required for sanitary sewer)

U.S. Army Corps of Engineers

Nashville Gas

Nashville Electric Service

Metro Public Works

BellSouth

Tennessee Valley Authority

Tennessee Department of Transportation

Railroads

Comcast Cable

Private property owners

• Easement agreements with owners of private property involved with the construction must be obtained and a right of entry notification executed before construction begins. (See additional information regarding easements, next page.)

Recording Easements

Easements for sanitary sewer extensions may be documented in two ways:

- 1. Easement Document on Standard Metro Form

 Submit to MWS Development Services and include map and parcel number, legal owner's name, instrument number or deed book and page number, legal description of the easement, scale drawing or exhibit/map showing the easement, and notarized signature of owner. MWS must approve and will record the easement at the developer's expense.
- 2. Recorded with Subdivision Plat

A preliminary development plan of the subdivision, along with a letter of intent, must be provided at the time of plan submittal. This plat must clearly define the easement to be recorded. A licensed Professional Engineer or Registered Land Surveyor will stamp the final subdivision plat assuring that the easement is recorded, as shown on the preliminary plat.

Redevelopment of Previously Developed Property

All service line renewals will be the responsibility of the developer for both water and sewer. MWS will not renew old existing services on properties being redeveloped. It shall be the responsibility of the developer to investigate, evaluate and determine if the services should be renewed. All costs will be at the developer's expense. Should the redevelopment of property require the relocation or abandonment of existing easements that contain facilities owned and operated by MWS, the approval of the Metropolitan Planning Commission and subsequent passage of an approving ordinance by the Metro Council is required. These approvals must be completed prior to the demolition of the old easements and facilities. The relocation, inspection and acceptance of the relocated facilities should take place prior to the legislation being passed. As significant time is required to complete this activity, developers should provide the required information to MWS Development Services as early as possible to avoid delays to the project.

Once reviewed and all review comments have been incorporated, submit 10 paper sets of plans for approval. Stamped, approved plans will be distributed to appropriate parties for their use.

Easement Requirements

Public Facilities

When constructing public sanitary sewer lines or water mains outside a public right of way, an easement must be provided and conveyed to the Metropolitan Government. Documentation of the easement should be submitted to MWS Development Services, which will approve and record it with the Register of Deeds for the county in which the property is located.

General Requirements	
Minimum width	20′ for all sizes
permanent easement	
Minimum total width	30′ (20′ permanent + 10′ temporary)

Additional Requirements Sewers – 8" through 24"	
Depth	Easement Width
0' to 5'	30′ (Minimum 20′
	permanent + 10' temporary)
5' to 7.5'	35′ (Minimum 20′
	permanent + 15' temporary)
7.5′ to 10′	40′ (Minimum 20′
	permanent + 20' temporary)

For requirements for larger diameter lines, please contact MWS Development Services at 615-862-4574.

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Pre-Construction Meeting

After all approvals and easements required are obtained and the application for public utility extension has been secured, a pre-construction meeting will be held. The project engineer, developer and contractor are required to attend the pre-construction meeting conducted by the MWS Senior Inspector and Project Inspector. The contractor shall provide sewer construction cut sheets in acceptable MWS format where applicable. The agenda for the meeting includes construction requirements and any questions on materials and any other specific concerns relating to the project.

All water and sewer related construction shall be inspected by MWS. The builder or developer shall reimburse MWS for the cost of inspection. MWS will prepare the deeds of conveyance and send them to the developer, who is required to return the signed deeds to MWS.

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Construction Permits

Upon conclusion of the pre-construction meeting, the permit for extension will be signed by the licensed municipal utility contractor or licensed master plumber involved at the Permits Office at the Howard School Building. Construction may commence after the permit is signed.

Temporary meters for water main construction

If water service is required for construction of the new mains, a temporary meter may be issued for use on a public fire hydrant. Un-metered use of Metro fire hydrants is strictly prohibited. Please call the MWS Customer Service Center at 615-862-4600 to request a temporary meter for use on a fire hydrant.

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Water/Sewer Extension Construction

Construct public water and/or sewer extensions, including all water and sewer service connections, to MWS specifications as directed by MWS inspector or request MWS inspector to schedule run to curbs (water only) after completion of the water main.

A licensed municipal utility contractor (for sewer or water) or licensed master plumber (for water) is required to perform all proposed public utility extension work. Contractors shall construct all water and/or sewer facilities accordinzg to MWS specifications, in conformance with applicable Metropolitan Code.

To request copies of the specifications, contact MWS Engineering Records at 615-862-4564.

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Inspections

All water and sewer related construction shall be inspected by MWS. The builder or developer shall reimburse MWS for the cost of inspection. MWS will prepare the deeds of conveyance and send them to the developer, who is required to return the signed deeds to MWS.

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Plats and Transfer Slips

Plats and transfer slips should be delivered to the MWS Permits Office.

Upon completion of the mains, connections for individual lots may be permitted and constructed by the builder/ developer. Notice for reimbursement may be made in lieu of providing transfer slips.

For additional information, contact the MWS Permits Office at 615-862-7225.

13 »

Site Utility Plans

Three sets of site utility plans/drawings (maximum of three sheets) shall be submitted to the MWS Permits Office and reviewed. A complete set of building plans is not necessary and will not be accepted. The site utility plan should include the following:

- Application number
- Type and size of pipe to be used
- Meter and valve details including size and connection
- Existing water and sewer location and details of proposed connection
- Location and detail of all back flow prevention devices on all water connections
- Name, address and phone number of contact person
- Fire Marshal stamp/approval of private fire protection systems (see requirements below)
- Coordinate with private fire protection system as appropriate

Availability of water and/or sewer is confirmed by the Permits Office either through land credits or purchase of a minimum of 30 percent of required capacity fees, outlined in Steps 1-5.

The Permits staff conducts an initial review of the plans for inclusion of the items listed above and reviews the plans with the cross connections section.

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Private Fire Protection

Anyone may install a private fire protection system for their home or business. Private fire protection plans, including detailed drawing and calculations, must be approved by the Fire Marshal. Requirements include:

- A detailed utility plan must be prepared and submitted by a licensed sprinkler contractor to MWS for review.
- The same plan must also be presented to the Fire Marshal for review and approval.
- The plan shall provide information on the size of water connection needed to supply the system and number of sprinkler heads.
- The drawing will indicate meter location and all necessary valving details as required by MWS specifications.
- The drawing must indicate the type of materials and devices to be used.
- The drawing shall include, but is not limited to: meter arrangements, backflow preventers, pressure reducing valves and approved meter boxes or vaults.
- To expedite processing, please submit a site utility plan showing domestic service detail with your submittal.

Cross Connections Specifications

Metro Water Services is commissioned through local, state and federal law to ensure a safe, dependable, potable public water supply. A cross connection program accomplishes this purpose through the inspection of backflow protection devices for proper installation and operation. Applicable legislation and agencies include the EPA Safe Drinking Water Act (SDWA); Tennessee Department of Environment and Conservation Bureau of Environment – Division of Water Supply, Public Water Systems.

The staff of MWS works with owners and designers of new water customer connections to assist in the determination of the most accurate and cost-effective means of protecting the public water supply. Once the owner submits their plans, MWS reviews the proposed type of device and its installation. Approved plans are stamped accordingly for the designated device and location.

When installed, the owner is responsible for notifying MWS Cross Connections to schedule inspection and testing of the backflow device. In addition, all existing meters 1½" or larger that have not been tested in the past year must be tested.

Costs for pre-design coordination and plan review are services and support provided free of charge to our customers. Costs for testing of new devices are billed as a direct cost (no profit) to the customer. Customer representative presence and assistance during testing minimizes time requirements and cost. The testing form used by MWS requires the signature of the owner's representative to ensure the owner's knowledge of device performance and any potential corrective action.

Please refer to Appendix 6 for further details regarding cross connections policies and procedures for existing devices and testing.

If the project is a tenant build-out, swimming pool, or addition or improvement to an existing building, a cross connection letter will be required. For a sample of the cross connection letter, please see Appendix 7.

To schedule inspection of a backflow device, call MWS Cross Connections at 615-862-4563.

STEP 13 DETAIL - STEP 15

14 » Plans Approval

After the initial review, if necessary, plans will be presented to the MWS Plans Review Committee. This cross-sectional group meets weekly and is responsible for recommendations for approval. This process assures the submitter that all MWS issues have been addressed prior to beginning construction and that the approval is supported by all areas of the department.

The committee review process will be completed within five to seven working days. The contact person will be notified by the Permits staff of any changes required and if it is necessary to submit revised plans.

For most efficient review of plans, please submit to MWS Permits Office before 2:00 p.m. on Friday.

For assistance or additional information, please contact the following:

- Regarding review or approval of plans or permits and payment of capacity fees, call Customer Service/Permits at 615-862-7225
- Regarding backflow inspection and cross connections, call 615-862-4562.

15 »

Excavation Permits

Is an excavation permit required?

- O No? Continue with step 16
- O Yes? Obtain excavation permit from Department of Public Works and set meter permit from MWS, then continue with step 16

Excavation Permits

Public Right-of-way

If the connection is in a public right-of-way, an excavation permit will be required. Excavation permits must be obtained from the Metro Department of Public Works prior to excavating a tap location. The contractor performing the excavation must be licensed and bonded.

For more information, contact the Department of Public Works at 615-862-8782 or visit the department's Web site at www.nashville.gov/pw.

Private Property

The Metro Department of Codes Administration has jurisdiction within private property. For more information, contact the Codes Department at 615-862-6600 or visit the department's Web site at www.nashville.gov/codes.

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16 » **Permits and Tap Fees**

WATER

Tap fees are due at the time of application for the water connection permit. For an example of the application for service permit, see Appendix 8. Tap fees are accounted by two methods:

A. Tap fees for water mains built by privately funded extensions After the construction of a privately funded public water main extension, run-to-curb connections for individual lots may be made. The developer must provide a signed transfer slip for each lot and a plat that shows the general arrangement of subdivision, lot numbers, water main sizes and locations. The transfer slip accounts for the cost of each tap fee, debited against the amount of the developer's equity.

Title 15 of the Metropolitan Code defines developer's equity as the cost of construction of the public main extension. This amount of equity may be used to offset any required tap fees up to the cost of the public extension. The cost of each tap is deducted from the amount of the developer's equity existing for the water main extension.

B. Tap fees for new connections to existing MWS water mains A development that does not need a water main extension will be required to pay a tap fee for the privilege of tapping a MWS water main according to the water tap fee schedule. Refer to the Schedule of Tap Fees insert in this handbook, or visit the MWS Web site for the most current fee schedule at www.nashville.gov/water.

SEWER

A detailed site utility plan must be reviewed and approved by the Permits Office for commercial sites. This plan is also typically required prior to the issuance of a building permit.

Tap fees are due at the time of application for the sewer connection permit. For an example of the service permit application, see Appendix 8. Tap fees are accounted by two methods:

A. Tap fees for sewer mains built by privately funded extensions After the construction of a privately funded public extension, connections for the individual lots may be made. The developer must provide a signed transfer slip for each lot unless the future homebuilder is responsible for the tap fee. The transfer slip is used to account for the cost of each tap fee. Title 15 of the Metropolitan Code defines developer equity as the cost of construction of the public main extension. This cost may be used to offset any required tap fees up to the cost of the public extension. The cost of each tap is deducted from the amount of developer's equity existing for the main extension.

B. Tap fees for connection to existing MWS sewer mains A development that does not need a sewer line extension will owe a tap fee according to the sewer tap fee schedule. Refer to the Schedule of Tap Fees insert in this handbook, or visit the MWS Web site for the most current fee schedule at www.nashville.gov/water. The individual requesting the tap must confirm the size and site material of the main to be tapped. Because some mains have been lined, visual inspection of the exposed pipe is not sufficient to identify the site material, which may be concrete, clay or PVC. Special processes exist for connecting to lined mains; therefore, the site material must be confirmed by manhole inspection.

Once required fees are paid and sewer availability and locations are determined, a service may be connected to the public sewer line.

If an existing service is present, a developer may with the permission of the Metro Department of Codes Administration obtain a sewer connection permit. If work must be performed in the public right of way or a new connection to the public sewer is required, an excavation permit must be obtained. Please see section 15 for additional information about excavation permits.

17 »

Meter Purchase

Purchase properly calibrated meter, complete with properly connected MXU unit. Commercial meters shall be purchased from a distributor in accordance with approved MWS meter specifications. See Appendix 9 for additional information on AMR.

For more information, please contact MWS Customer Service at 615-862-4600.

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Taps

Call the MWS Permits Office to schedule a crew to tap a public water or sewer main, having completed excavation of tap location prior to MWS crew arrival and having all materials available and ready to install.

PUBLIC MAINS

Call the MWS Permits Office to schedule a MWS crew to tap a public water or sewer main

Only Metro Water Services may tap a public water or sewer main. To schedule a new tap on the Metro system, contact the Permits Office at 615-862-7225. Taps must be scheduled a minimum of two working days in advance. The main must be exposed when the MWS crew arrives.

All tap, sleeve, valves and miscellaneous fittings required to make the tap shall be provided by the contractor. Service lines shall be installed to the boundary of the property if not previously installed as a run to curb.

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Inspections

Contact the proper office to request inspection of water and sewer connections.

Water Connections

Contact the MWS Permits Office at 615-862-7225 to request inspection of water taps. The Permits Office will schedule the inspection within two days for compliance with Title 15 of the Metropolitan Code.

Sewer Connections

Contact Metro Codes at 615-862-6550 to request inspection of sewer connections. Metro Codes will notify MWS of approval or non-approval.

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Meter and Meter Box Installation

For all installations, the property owner, contractor or licensed plumber shall furnish the meter and meter box. Both shall meet current MWS specifications and standard details.

MWS will automatically schedule initial field inspection 10 working days after permit is issued. Any re-work that is necessary will be directed by MWS. A second inspection will then be required. Actual cost for additional inspections will be billed back to the plumber.

To secure approval on the use and occupancy portion of the building permit, owner must schedule final inspection after completion of landscaping.

In accordance with MWS policy, the Metro Department of Codes Administration shall have jurisdiction within private property.

Call the MWS Permits Office at 615-862-7225 with questions concerning inspection of the meter and meter box.

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Cross Connections Inspection

Install backflow prevention device according to approved plans and specifications including installation of a permanent air gap assembly on connections to buildings with multiple sources of supply. To schedule inspection, call MWS Cross Connections at 615-862-4563.

PROCESS END

Once all items are installed correctly and pass inspection, MWS Permits Office releases its portion of the use and occupancy (U&O) building permit.

Appendix 1 Information for Industrial Users

No person shall introduce into the publicly owned treatment works (POTW) any of the following pollutants which, acting either alone or in conjunction with other substances present in the POTW, interfere with the operation of the POTW as follows:

- 1. Pollutants which could create a fire or explosion hazard in the POTW;
- 2. Pollutants which cause corrosive structural damage to the POTW, but in no case discharges with a pH lower than 5.0 or higher than 10.0;
- 3. Solid or viscous pollutants in amounts which cause obstruction to the flow of the sewers, or other interference with the operation of or which cause injury to the POTW, including waxy or other materials which tend to coat and clog a sewer line or other appurtenances thereto;
- 4. Any pollutant, including oxygen-demanding pollutants (BOD, etc.), released in a discharge of such volume or strength as to cause interference in the POTW;
- 5. Heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the treatment works influent exceeds forty degrees Celsius (one hundred four degrees Fahrenheit). Unless a higher temperature is allowed in the user's wastewater discharge permit, no user shall discharge into any sewer line or other appurtenance of the POTW wastewater with a temperature exceeding 65.5° Celsius (one hundred fifty degrees Fahrenheit).

Excerpts from Title 15 regulations:

- A. The purpose of this chapter is to set uniform requirements for users of the metropolitan government of Nashville and Davidson County's (Metro) wastewater collection system and treatment works to enable Metro to comply with the provisions of the Clean Water Act and other applicable federal laws and regulations, Tennessee's Water Quality Control Act and other applicable state laws and regulations, and to provide for the public health and welfare by regulating the quality of wastewater discharged into Metro's wastewater collection system and treatment works.
- B. This chapter provides a means for determining wastewater volumes, constituents and characteristics, the setting of charges and fees, and the issuance of permits to certain users. This chapter establishes effluent limitations and other discharge criteria and provides that certain users shall pretreat waste to prevent the introduction of pollutants into the publicly owned treatment works, including the collection and transmission system (hereinafter referred to as POTW), which may interfere with the operation of the POTW or contaminate the sewage sludge; and to prevent the introduction of pollutants into the POTW which may pass through the treatment works into the receiving waters or the atmosphere, or otherwise be incompatible with the treatment works; and to improve opportunities to recycle and reclaim wastewaters and sludge resulting from wastewater treatment. This chapter provides measures for the enforcement of its provisions and abatement of violations thereof. This chapter establishes a hearing authority and establishes its duties and establishes the duties of the director of the department of water and sewerage services to ensure that the provisions of this chapter are administered fairly and equitably to all users. (Prior code § 40-1)

Appendix 2 Request for Water and Sewer Availability Form

Please photocopy this form for repeated use.

Date	
Name of person requesting study	
Address of person requesting study	
Office or other daytime phone #	
Owner, if different from above	
Address of property	
Purpose of construction/ intended use	This form is provided
Subdivision or PUD #	as an aid for the publi
Building permit #, if available	in requesting a letter of availability for water and/or sewer
Sq footage of proposed building	for property owned by Metro Water Services
Projected wastewater flow (in GPD)	Please note that
Finished floor elevations	the study will take
Site utility plan included	approximately 15 working days to
Fire service type and size	complete.
Engineering/Surveying/ Design Firm	» Please enclose a check for \$50 made
E/S/D firm phone number and contact person	payable to Metro Water Services for
	 the study.

Please address all correspondence to:

Metro Water Services Development Services Attn: Availability Request 1600 2nd Ave. N. Nashville, TN 37208

For assistance or additional information, please contact MWS Development Services at 615-862-4578.

Appendix 3 Projected Flow Examples

Discharge Facility	Design Units	Flow in GPD
Single family dwelling	Per dwelling	350
General office space	Per employee	25
Office/warehouse space	Per square foot	0.1
Schools w/ showers & cafeteria	Per person	16
Schools w/out showers & cafeteria	Per person	12
Boarding schools	Per person	75
Motels at 65 gal/person (rooms only)	Per person	130
Trailer courts at 3 persons/trailer	Per trailer	225
Restaurants	Per seat	40
Interstate or through highway restaurants	Per seat	180
Interstate rest areas	Per person	5
Service stations	Per vehicle serviced	10
Service stations	Per fuel island	1000
Factories	Per person per 8-hour shift	25
Shopping centers (no food) of ultimate floor space	Per 1,000 square feet	150
Hospitals	Per bed	200
Nursing homes (add 75 gallons for laundry)	Per bed	120
Home for the aged	Per bed	60
Child care center	Per child and adult	10
Laundromats, 9-12 machines	Per machine	250
Swimming pools	Per swimmer	10
Theaters, auditorium type	Per seat	5
Picnic areas	Per person	5
Retirement living	Per resident	100
Resort camps, day & night w/ limited plumbing	Per campsite	50
Luxury camps with flush toilets	Per campsite	100
Churches (no kitchen)	Per seat	3
Churches (with kitchen)	Per seat	5

Appendix 4 Construction Plan Review Checklist

Please photocopy this form for repeated use.

This checklist may be helpful in determining if your plans have all the information required by MWS and contains a list of some of the documents and/or agency approvals that may be necessary prior to final approval by the department.

	ct No.: Yes	No
Plan size standard 24" x 36" (no other size accepted)		
Availability requested/answered		
Sewer capacity available		
Water pressure/volume adequate		
Easement(s) provided for adjacent property in the drainage area		
Easement(s) obtained and indicated on plan		
State highway permit		
TVA permit		
Railroad permit		
Corps of Engineers permit		
Streets names		
Private streets/open space – indicated as public utility easements		
Engineer's stamp on each plan sheet – signed and dated		
Location map		
Map and parcel numbers		
Site plan (requires entire property)		
Sewer service tees indicated for each lot – no bends (from main to ROW)		
Sewer sized for drainage area		
Existing utilities shown		
Sufficient topography shown		
Adequate cover (for sewer, 4' in street/pavement, 30" private property)		
Pipe material indicated		
Future extension considered		
Attached plan notes correct		
Water mains located 5' inside curbs		
Water meters located 25' from property corners		
2" blow off valves indicated at ends of water main (6" & 8")		
1" blow off valves at end of 3" PVC water main		
Bench mark, must be based on USGS datum		
Valving correct		
Plat received/bond set		
Proper scale – less than 600' – 1" = 20'		
Proper scale - ners than 600' - 1" = 50'		
Drainage conflicts – storm pipes/creeks/etc.		
Water main to end within pavement No sewer lines or manholes located on property lines		
Ductile iron pipe Class 52 used if depth exceeds 15' (sewer) or grade exceeds	19%	
10 foot separation between water and sewer lines	10 /0	
Fire hydrants spaced at 500' intervals, with 250' coverage		
, , , , , , , , , , , , , , , , , , , ,		
Sanitary sewers located in the center of road when possible Provide as-builts to MWS Engineering Review Section (hard copy and digital for	umata)	
Provide owner's name, address and phone on cover sheet of construction plans		

Appendix 5 Standard Plan Notes

- 1. All water and sewer construction shall be in accordance with specifications and standard details of the Metro Water Services.
- 2. The contractor is responsible for reimbursing the Metro Water Services the cost of inspection.
- 3. The contractor is to provide and maintain the construction identification sign for private development approved.
- 4. After completion of the sanitary sewer, the developer is responsible for the televising of the lines prior to final acceptance. The videotaping must be coordinated with the Metro Water Services Inspection Section. All costs will be borne by the developer.
- 5. All connections to existing manholes shall be by coring and resilient connector method.
- 6. Reduced Pressure Backflow Prevention Devices (RPBP) or dual check valve will be required on all test and fill lines (jumper) needed for water main construction and must be approved by the Metro Water Services.
- 7. All water meter registers shall be a minimum of 24" not to exceed a maximum of 28" below finished grade.
- 8. Upon completion of construction of water and/or sewer, the engineer shall provide the department with a complete set of as-built plans on moist erasable mylars in reverse and in digital (*.dwg) format. Sewer plans shall be sealed by a licensed professional engineer or a registered land surveyor and shall include actual field angles between lines, all actual service lines and tee locations, the distance of the end of the service line to property corners and lines and/or station and offset from sewer centerline to end of service line, the depth to the top of the end of the service line, and shall reflect all alignment and grade changes. Water line plans shall be sealed by a licensed professional engineer or a registered land surveyor and shall include offset distance from the roadway centerline, or property line right of way, line depth, locations of hydrants, valves, reducers, tees and pressure reducing devices where applicable. All drawings must be completed and submitted prior to acceptance of the sewers or water mains into the public system and any connections being made.

Appendix 6 Cross Connections Policies and Procedures: Existing Devices and Testing

Metro Water Services conducts annual and semi-annual inspections of existing devices and notifies owners of performance or need of correction. Records of activities are maintained for five consecutive years for reference.

The Testing Form is a MWS-generated triplicate form that indicates all pertinent information relative to conducting large meter and backflow protection device testing. This form is to be signed by the MWS inspector and owner's representative upon completion of test or retest. One copy is retained by the owner and two are retained for MWS records.

MWS schedules testing based on required frequency. DDCV devices are tested annually, while RPBP devices are tested semi-annually. Appointment letters are sent to customers indicating test dates and times two weeks prior to testing. Tests are scheduled during regular business hours unless the customer requests that testing be performed during off hours.

The cost of all testing is billed to our customers as a direct cost with no profit to MWS or the Metropolitan Government. The cost of testing performed during requested times that are outside of regular business hours are higher due to Federally-mandated compensation rates (usually 1.5 times regular pay). All costs are kept to a minimum and are further reduced by the required presence during testing of an owner's representative. The presence of an owner's representative during testing enables a more timely and complete test with less disruption of service to the customer.

Further, testing forms used by MWS during the course of testing require the signature of an owner's representative to ensure the owner's knowledge of device performance and any required corrective action. Once a test is performed, a MWS inspector will indicate testing results and outcome – pass or fail – on the testing form. The owner retains a copy of the form for their records and MWS retains a copy of the form and updates its database. Upon failure, the MWS inspector will indicate the date of retest (currently 30 days). This allows the owner to contract with a plumber or contractor to perform necessary corrective work.

On the 30-day retest date, the MWS inspector will perform another test. Upon passing, the owner retains a copy of the form for their records and MWS retains a copy of the form and updates its database. Upon failure, the MWS inspector will indicate date of another retest (currently 5 days). This again allows the owner to contract with a plumber or contractor to perform necessary corrective work.

On the 5-day test date, the MWS inspector will perform another test. Upon passing, the owner retains a copy of the form for their records and MWS retains a copy of the form and updates its database. Upon failure, MWS will discontinue (cut off) service to the customer until the service connection is brought into compliance in accordance with local, state and federal guidelines. Costs of tests and retests are the responsibility of the owner.

Appendix 6 (continued)

Metro Water Services System Statistics for Large Meter and Backflow Devices Commercial Accounts (as of April 2003)

Meter Size (inches)	Number of Meters/Backflow Protection Devices	Frequency of Meter Test* (Every number of years)	Frequency of Backflow Device Test** (Every number of years)
1.5	1134	4	1
2	2300	4	1
3	479	3	1
4	244	2	1
6	390	1	1
8	193	1	1
19	32	1	1
TOTAL	4772		

^{*} American Water Works Association recommended frequency ** The state recommends semi-annual testing of high hazardous facilities

Notes: All metered accounts less than 1½ inches are to be tested annually utilizing a third party contractor. This program als

Notes: All metered accounts less than 1½ inches are to be tested annually utilizing a third party contractor. This program also includes residential and commercial irrigation connections. Cost of testing will also be recovered from owner.

Physical connection to fire hydrants, blow-offs, or other appurtenances of the public water supply is strictly prohibited without the written approval of MWS. Further, approved connections require permitting and MWS designated and/or supplied backflow and metering devices. Non-compliance with this policy shall result in citation and prosecution to the full extent of the law.

Appendix 7 Cross Connections Letter

Please photocopy this form for repeated use.

Date:				
Regarding » Installation of Approved Backflow Prevention Device(s) or Installation of a Permanent Air Gap Assembly and Meter Testing Program				
AGENT/OWNER(S) NAME:				
CONTRACTOR NAME:				
ADDRESS:				
MAP & PARCEL:				
I will install a main line Approved Backflow Prevention Device(s) on all existing water services. Prior to installation, I will have a licensed Master Plumber obtain the proper permit from the Codes Administration Office. I understand fire and domestic lines must be protected to Metro Water Services specifications, and that work on fire services must be done by a licensed fire protection company approved by the Fire Marshall. I understand all meters and backflow testing and inspection must be completed before a final Use and Occupancy Permit will be issued. I will schedule testing for any meters 1½ inches and larger that have not been tested within the last year.				
Signature	Name (please print)			
Phone Number				
Company Name (if required)				
To schedule meter testing, please call 615-862-4563.				

Appendix 8 Application for Service/Permit

For Customer Service Use Only Account Number Cycle Route Permit Number Meter Size Permit Processor Map and Parcel

Please photocopy this form for repeated use.

THE METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY METRO WATER SERVICES CUSTOMER SERVICE CENTER

PLEASE PRINT FILL IN ALL BLANKS

Owner Name:						
	Last, First, Middle					
Telephone Number: (H)			(O)			
Service Address:						
	Number Street					
	City		State		Zip	Code
Lot No.		Residential	Comm	ercial		
New	nt ()Left ()Co	Split Connection		Discontinued		
Mailing Address:	:					
	Number Street					
	City		State		Zip	Code
Plumbing Comp	any Name:		Plumber's 1	Phone No.:		
Plumber's Name	(PRINT)	Plumber's Signature	License No:	Date		

^{*}Meters will be inspected ten working days after permit is issued. Additional inspections may result in cost of service fees.

Appendix 9 Automatic Meter Reading Information

The Sensus RadioReadTM Meter Transceiver Unit (MXU)*
* Information provided to MWS by the vendor, which is wholly responsible for its accuracy.

Application

The Sensus RadioRead Meter Transceiver Unit (MXU) is a radio signal interface device that permits off-site meter reading via radio signals. The MXU interfaces any compatible absolute encoder equipped utility meter with a Sensus RadioRead interrogation device. The MXU is used for both inside and pit-set utility meter installations to provide safe, off-site meter reading. It eliminates a number of meter reading problems such as lockouts, entering unsafe meter vaults, "curb side" reading estimates, estimated billing and errors associated with manual meter reading methods.

The Sensus MXU Model 505 provides the industry's only two-port radio interface device. In addition to the two-port design, the Model 505 is compatible with the Sensus MultiReadTM Module that permits up to four to eight meter connections per MXU port. This feature provides enhanced cost effective AMR where multiple meter installations exist.

RadioRead Operation

When used with a Sensus handheld or vehicle interrogation unit, the Sensus RadioRead system provides two-way communications between the reading unit being used and system equipped utility meters. The MXU connected to the meter receives an activation wake up signal from the interrogation unit. The MXU then obtains the meter's absolute encoder identification number and meter reading, which are transmitted back to the interrogation device. Diagnostic data such as battery strength is also transmitted. After the interrogation unit receives valid data, it transmits an acknowledgment signal back to the MXU, which returns it to the power down mode. This helps maintain battery life and also optimizes the efficiency of the system by eliminating unnecessary radio transmissions.

RadioRead Integrity

When interfaced with an absolute encoder, RadioRead system meter reading is virtually free of errors. The readings are made from the actual positions of the encoder's odometer wheels at the time the reading is made to ensure valid up-to-date readings. Any errors or non-reads are immediately indicated on the meter reading

equipment. This information can also be generated on management reports when the data is down-loaded at the end of the reading cycle. In addition, high/low reading parameters can also be verified during the meter reading process.

Programmability

For special meter reading applications such as commercial routes and multi-utility installations, the MXU can be programmed to only respond to utility defined class and password codes. The MXU can also be reprogrammed to transmit in one-way mode for use in some fixed base systems.

TouchRead System

The MXU has built-in connections for optional hookup to TouchRead System sensors. Use the TouchRead options as a reading back-up or for making visual readings, if desired. The hookup is not compatible for use with the Schlumberger Proread protocol.

Replacement Battery

The lithium manganese dioxide battery provides long service and is the industry's first replaceable battery cartridge system. This design provides fast, easy battery replacement. The battery is made of materials shown to have significantly less toxicity compared to those used in other brands to minimize the environmental impact of used battery disposal.

Installation

The MXU can be installed in either meter pits or vaults, or inside buildings. A mounting bracket is available for installations requiring mounting on vertical walls. Wire connections are made using 3M gel cap splicing kits to ensure dependable MXU operation in damp, wet conditions such as inside meter pits or vaults that may be subject to flooding.

MultiRead™ Module

A compatible module that permits up to four or eight connections per MXU post.

Appendix 10 Who To Call Guide

Metro Water Services	
Central Laboratory	
Water Quality	862-4591
Communication Services	862-4494
Customer Service Center	862-4600
Service Changes	
Billing	
Customer Concerns	
IVR payments/inquiries	
Cross Connections	862-4563
Emergency Services	862-4600
Leak in Street/Meter Box	
Sewer Overflow	
Development Services/Engineering	
Construction Plans Review	862-4574
Construction/Inspections	862-4555
Engineering Records	862-4564
Sewer Capacity Study	862-4578
Environmental Compliance	862-4590
Permits/Customer Connections	862-7225
Water/Sewer Tap Scheduling	
Tap Inspection	
Meter Box Inspection	
Stormwater	862-4600
Other Metropolitan Agencies	
Fire Marshall	862-5230
Codes Department	862-6500
Metro Development and Housing Authority (MDHA)	252-8400
Public Works	862-8700
Additional Numbers	
BellSouth	557-6500
Comcast Cable	244-5990
Nashville Gas	734-0665
NES	736-6900
Tennessee Department of Transportation	741-3196
Tennessee One Call	366-1987
Tennessee Valley Authority	780_3800

Appendix 11 Glossary

Availability Letter » A letter issued by Metro Water Services after receiving developer payment of capacity fees that confirms water service elevations, water main size, and sewer availability/capacity

Backflow » The reversed flow of contaminated water or other liquids into the distribution system of a potable water supply.

Backflow Prevention Device » Any device, method or construction used to prevent the backward flow of liquids into a potable distribution system.

Bypass » Any arrangement of pipes, plumbing or hoses designed to divert the flow around an installed device through which the flow normally passes.

Capacity Study » A study to determine projected sewer flow for a proposed development and/or business including capacity fees applicable to the proposed development

Capacity Fee » A fee charged to reserve sanitary sewer capacity for proposed developments

Contractor » One who agrees to furnish materials and/or construction services for an agreed price

Cross connection » Any arrangement of pipes, fittings or devices that connects a non-potable system to a potable water system.

Developer » One who develops real estate for residential or commercial purposes

Developer's Equity » Equity for developer's construction of sewer/water main extension after such has been deeded to MWS with amount based on the contractor's certificates of cost showing the charges for the construction

Double Detector Check Valve (DDCV) » Backflow prevention device that may be installed on connections to the public water supply. As the name implies, this device is comprised of two check valves, two test cocks and two shut-off valves that only allow flow in one direction.

Easement » A right, given to a person or agency, to make

limited use of real property owned by someone else

Lay and Deed » Public water and/or sewer mains constructed and paid for by an individual or developer other than Metro Water Services. After construction these are conveyed by deed to the Metropolitan Government to be owned and maintained

Metro Water Services » The Department of Water and Sewerage Services of the Metropolitan Government of Nashville and Davidson County

Licensed Utility Contractor » A contractor approved and licensed by the State of Tennessee

Reduced Pressure Backflow Preventor (RPBP) » Backflow prevention device that may be installed on pressurized or potentially pressurized connections to the public water supply. As the name implies, this device does not allow flow from a higher pressure service side system into the lower pressure public system. This is accomplished through the presence of spring-loaded check valves with a reduced pressure zone between the check valves to protect against backpressure and backsiphonage.

Run-to-Curb » Water service installed from the public main to the property line or right-of-way

Right-of-Entry » Notification executed by each property owner affected by public water or sewer construction

Sewer Connection » Point of entry by new tap or connection to an existing lateral service

Transfer Slips » Slips that must be submitted prior to issuance of permits that convey a developer's equity to the current property owner

Water/Sewer Tap Fees » A privilege fee paid to MWS prior to connection to MWS distribution system



Requests for ADA accommodations should be directed to:

ADA Coordinator Metro Water Services 1600 2nd Avenue North Nashville, TN 37208-2206 (615) 862-4862



The Mission of Metro Water Services:

To provide drinking water, wastewater treatment and stormwater management services to our community so we can enjoy a vital, safe and dependable water supply and protected environment.

www.nashville.gov/water (615) 862-4600

